

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method for determining an amount of coal tar that can enter a given type of soil at a range of soil depths at a field site, comprising:

placing a soil sample free of coal tar from a site in a pressurizable chamber;

filling the pressurizable chamber with water, thereby displacing gas from the pressurizable chamber;

feeding coal tar at a first predetermined pressure to the pressurizable chamber, thereby pressurizing the soil sample to the first predetermined pressure and displacing a portion of the water with the coal tar to create an amount of displaced water;

measuring the amount of the displaced water to determine an amount of coal tar that entered the soil sample;

repeating said the feeding coal tar and said the measuring the amount of the displaced water at a plurality of additional predetermined pressures to provide a plurality of pressures and corresponding amounts of coal tar that entered the soil sample; and

correlating each of said the pressures to a depth of soil at a field site to determine an amount of coal tar that can enter the soil at a range of soil depths at the field site.

2. (Currently Amended) The method of claim 1, further comprising determining an amount of coal tar that can be displaced from the soil sample at a range of soil depths at the field site, wherein said determining comprises:

feeding water at a first predetermined water pressure to the pressurizable chamber, thereby pressurizing the soil sample to the first predetermined water pressure and displacing a portion of the coal tar from the sample to ~~product~~ produce an amount of displaced coal tar;

measuring the amount of displaced coal tar;

repeating ~~said the~~ feeding water and ~~said the~~ measuring the amount of displaced coal tar at a plurality of additional predetermined water pressures, thereby generating a plurality of water pressures and corresponding amounts of displaced coal tar; and

correlating each of ~~said the~~ water pressures to a depth of soil at the field site to determine an amount of coal tar that can be displaced from the soil sample at a range of soil depths at the field site.

3. (Currently Amended) A method for determining an amount of coal tar that can be displaced from a soil sample at a range of soil depths at a field site, comprising:

placing a soil sample comprising a known amount of coal tar in a pressurizable chamber;

removing gas from the soil sample;

feeding water at a first predetermined water pressure to the pressurizable chamber, thereby pressurizing the soil sample to the first predetermined water pressure and displacing a portion of the coal tar from the sample to ~~product~~ produce an amount of displaced coal tar;

measuring the amount of displaced coal tar;

repeating ~~said the~~ feeding water and ~~said the~~ measuring the amount of displaced coal tar at a plurality of additional predetermined water pressures, thereby generating a plurality of water pressures and corresponding amounts of displaced coal tar; and

correlating each of said the water pressures to a depth of soil at the field site to determine an amount of coal tar that can be displaced from the soil sample at a range of soil depths at the field site.

4. (Withdrawn) A apparatus, adaptable for positioning in the laboratory or the field, for determining an amount of coal tar that can enter, and subsequently be displaced from, a given type of soil for a range of depths of the soil, comprising:

a pressurizable chamber configured to hold a soil sample;

at least two reservoirs fluidly connected to said pressurizable chamber and configured to feed a pressurized fluid to said pressurizable chamber; and

a source of controlled pressure fluidly connected to each of said at least two reservoirs.

5. (Withdrawn) The apparatus of claim 4, further comprising:

a container fluidly connected to said chamber for collecting leachate from the soil sample in said chamber;

a hydrophilic filter fluidly connected to said container.

6. (New) The method of claim 1, wherein repeating the feeding coal tar and the measuring the amount of the displaced water at the plurality of additional predetermined pressures comprises determining an asymptotic minimum amount of displaced water.

7. (New) The method of claim 6, wherein the asymptotic minimum amount of displaced water is associated with an asymptotic maximum amount of coal tar enterable into the soil sample.

8. (New) The method of claim 1, wherein the plurality of pressures comprise a range of about 0.01 psi to about 100 psi.
9. (New) The method of claim 1, wherein the soil sample is obtained from a field site at a depth of up to about 300 feet.
10. (New) The method of claim 1, further comprising generating a graphical representation illustrating an amount of coal tar enterable into the soil sample in a range of pressures.
11. (New) The method of claim 2, wherein repeating the feeding water and the measuring the amount of displaced coal tar at the plurality of additional predetermined water pressures comprises determining an asymptotic minimum amount of displaced coal tar.
12. (New) The method of claim 11, wherein the asymptotic minimum amount of displaced coal tar is associated with an asymptotic maximum amount of coal tar displaceable from the soil sample.
13. (New) The method of claim 2, wherein the plurality of water pressures comprise a range of about 0.01 psi to about 100 psi.

14. (New) The method of claim 2, further comprising generating a graphical representation comprising:

a first curve illustrating amounts of coal tar enterable into the soil in a range of pressures;
and

a second curve illustrating amounts of coal tar displaceable from the soil in the range of pressures.

15. (New) The method of claim 14, further comprising using the graphical representation to determine a maximum amount of coal tar enterable into the soil at a predetermined depth of the soil.

16. (New) The method of claim 14, further comprising using the graphical representation to determine a maximum amount of coal tar displaceable from the soil at a predetermined depth of the soil.

17. (New) The method of claim 14, further comprising using the graphical representation to determine whether coal tar can be displaced from the soil given a predetermined depth and a predetermined coal tar concentration.

18. (New) The method of claim 14, further comprising using the graphical representation to determine a concentration of coal tar in the soil given a predetermined water pressure required to displace the coal tar from the soil.